Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An ultrasonic imaging system which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising: means ~~in which a transmit signal is transmitted to said object, whereby~~for discriminating and detecting a phase aberration from a phase shift of a receive signal in a form of a reflected ultrasonic wave returned from said object based upon a transmit signal in a form of an ultrasonic wave transmitted to said object, the phase aberration being due to an acoustic impedance map in said object and due to other factors ~~from phase shift of a receive signal returned from said object referred to said transmit signal, phase aberration of said receive signal due to an acoustic impedance map in said object and phase aberration of said receive signal due to other factors are discriminated and detected; and~~; means for transmitting a transmit signal superimposed on an even harmonic wave of a fundamental wave; means for using an orthogonal component of a received second harmonic wave to correct~~, to said receive signal~~, the phase aberration ~~by phase shift~~ due to frequency-dependent attenuation caused in the process of propagation of ~~said~~the ultrasonic wave ~~to said receive signal~~; and means for obtaining an acoustic impedance of said object from a complex signal in which ~~said~~the phase shift is corrected.

2. (currently amended) The ultrasonic imaging system according to claim 1, further comprising means for correcting~~, to said receive signal, said~~ the detected

phase aberration of ~~said~~the receive signal.

3. (currently amended) The ultrasonic imaging system according to claim 1, further comprising means for displaying phase information due to ~~said~~the acoustic impedance map.

4. (currently amended) The ultrasonic imaging system according to claim 1, further comprising: means for orthogonally detecting ~~said~~the receive signal ~~to express it as~~and expressing the detected receive signal as a complex signal; means for squaring ~~said~~the complex signal; a low–pass filter; means for correcting phase shift due to frequency–dependent attenuation based on ~~said~~the complex signal being passed through ~~said~~the low–pass filter; and means for obtaining ~~said~~the acoustic impedance map or ~~said~~the acoustic impedance of said object from ~~said~~the complex signal in which ~~said~~the phase shift is corrected.

Claim 5 (canceled)

6. (currently amended) The ultrasonic imaging system which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising: ~~means in which a transmit signal is transmitted to said object, whereby from phase shift of a receive signal returned from said object referred to said transmit signal, phase aberration of said receive signal due to an acoustic impedance map in said object and phase aberration of said receive signal due to other factors are discriminated and detected;~~means for discriminating and detecting a phase aberration from a phase shift of a receive signal in a form of a reflected ultrasonic wave returned

from said object based upon a transmit signal in a form of an ultrasonic wave transmitted to said object, the phase aberration being due to an acoustic impedance map in said object and other factors; and means for calculating a phase shift in ~~the~~a lateral direction of a point spread function decided by transmission/reception conditions of ~~said~~the ultrasonic wave; filtering processing means for minimizing ~~said~~the phase shift; means for correcting~~, to said receive signal,~~ a phase aberration in the lateral direction of a beam of ~~said~~the ultrasonic wave caused by phase shift due to a diffraction effect; and means for obtaining acoustic impedance of said object from a complex signal in which ~~said~~the phase aberration is corrected.

7. (currently amended) The ultrasonic imaging system according to claim 6, ~~further comprising:~~wherein the filtering processing means is based on a method of least squares for minimizing the phase shift in the lateral direction of ~~said~~the point spread function; means for correcting the influence of ~~said~~the phase shift in the lateral direction to extract ~~said~~the acoustic impedance map in said object; and means for imaging ~~said~~the acoustic impedance map.

8. (currently amended) An ultrasonic imaging system which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising: means ~~in which a transmit signal is transmitted to said object, whereby~~for correcting a phase aberration from a phase shift of a receive signal in a form of a reflected ultrasonic wave returned from said object based upon a transmit signal in a form of an ultrasonic wave transmitted to said object, ~~from phase shift of a receive signal returned from said object referred to said transmit signal~~, the phase aberration being caused by phase shift due to frequency dependent attenuation and/or phase

shift due to a diffraction effect ~~is corrected~~; means for extracting or enhancing a phase shift of a resonant object in said object; and means for performing imaging which reflects spectroscopy in a resonant state by changing a transmit frequency of ~~said~~the ultrasonic wave.

Claim 9 (canceled)

10. (currently amended) The ultrasonic imaging system according to claim 8, wherein ~~said~~the means for extracting or enhancing the phase shift extracts or enhances a phase shift of an ultrasonic contrast agent in said object.

11. (currently amended) The ultrasonic imaging system according to claim 10, further comprising: ~~means orthogonally detecting said receive signal to express it as a complex signal; means squaring said complex signal; a low-pass filter; means correcting phase shift due to frequency-dependent attenuation based on said complex signal passed through said low-pass filter;~~means for orthogonally detecting the receive signal and expressing the detected receive signal as a complex signal; means for squaring the complex signal; a low-pass filter; means for correcting the phase shift due to frequency-dependent attenuation based on the complex signal being passed through the low-pass filter; and means for obtaining ~~the~~ position, amount, and moving speed of ~~an~~the ultrasonic constant agent in said object from a phase shift part of ~~said~~the complex signal remaining after correcting ~~said~~the phase shift.

12. (currently amended) The ultrasonic imaging system according to claim 10, further comprising: means ~~in which~~for transmitting a transmit signal superimposed on a second harmonic wave of a fundamental wave ~~is transmitted, whereby said~~and for utilizing a received second harmonic wave having an in–phase component to the phase of ~~said~~the transmit signal ~~is used~~ to isolate a phase shift caused in the process of propagation of ~~said~~the ultrasonic wave from the phase shift ~~of the~~in accordance with existence of ~~a~~the ultrasonic contrast agent; and means for obtaining ~~the~~ position, amount, and moving speed of ~~an~~the ultrasonic constant agent in said object.

13. (currently amended) The ultrasonic imaging system according to claim 10, further comprising: means ~~in which~~for calculating a phase shift in ~~the~~a lateral direction of a point spread function decided by transmission/reception conditions ~~is calculated~~, filtering processing means for minimizing ~~said~~the phase shift ~~corrects~~so as to correct a phase aberration in the lateral direction of a beam of ~~said~~the ultrasonic wave caused by phase shift due to a diffraction effect, and for isolating phase shift caused by diffraction of ~~a~~the beam of ~~said~~the ultrasonic wave ~~is isolated~~ from phase shift due to the existence of ~~a~~the ultrasonic contrast agent; and means for obtaining ~~the~~ position, amount, and moving speed of ~~an~~the ultrasonic constant agent in said object, wherein the filtering processing means performs filtering processing based on a method of least squares ~~is performed to minimize phase shift in the lateral direction of said point spread function~~.

14. (currently amended) An ultrasonic imaging system which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising: means ~~in which a transmit signal is transmitted to said object, whereby~~for

detecting a phase aberration from a phase shift of a receive signal in a form of a reflected ultrasonic wave returned from said object based upon a transmit signal in a form of an ultrasonic wave, the phase aberration being due to discontinuity of acoustic impedance of said object transmitted to said object ~~from a phase shift of a receive signal returned from said object referred to said transmit signal, phase aberration of said receive signal due to discontinuity of acoustic impedance in said object is detected~~; and means for obtaining a time change in ~~said~~the acoustic impedance of said object ~~to display~~and for displaying the time change in ~~said~~the acoustic impedance.

15. (currently amended) A treating system comprising: an ultrasonic imaging system according to claim 14; and means for feeding back to the treating system ~~said~~the ~~discontinuous~~ time change in acoustic impedance obtained from ~~said~~the ultrasonic imaging system which is discontinuous ~~, as a treated state of a treating system using ultrasonic waves, to said treating system~~.

Claim 16 (canceled)

17. (currently amended) An ultrasonic imaging system which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising: means for transmitting a transmit signal in a form of an ultrasonic wave to said object; means for orthogonally detecting a receive signal in a form of reflected ultrasonic wave returned from said object; means for obtaining a component corresponding to a phase shift from ~~said~~the orthogonally detected receive signal; a low–pass filter for removing an abrupt change from ~~said~~the component corresponding

to the phase shift; means for using the output signal of ~~said~~the low-pass filter to correct~~, to said receive signal, from phase shift of a receive signal returned from said object referred to said transmit signal~~, a phase aberration in ~~the~~a lateral direction of a beam of ~~said~~the ultrasonic wave caused by phase shift due to frequency-dependent attenuation and/or phase shift due to a diffraction effect; input means for selecting a phase shift to be displayed; and means for extracting or enhancing for display the phase shift selected by ~~said~~the input means or a signal in the range of the phase shift.

18. (currently amended) An ultrasonic imaging system which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising: means for transmitting a transmit signal superimposed on an even harmonic wave of a fundamental wave to said object; means for orthogonally detecting a receive signal returned from said object; means for inputting a specific phase component to said even harmonic wave from ~~said~~the orthogonally detected receive signal; and means for extracting or enhancing a signal of a phase component in the range selected by ~~said~~the input means; and means for displaying the ~~same~~extracted or enhanced signal.

19. (currently amended) An ultrasonic imaging method which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising the steps of: transmitting a transmit signal in a form of an ultrasonic wave to said object; receiving a receive signal in a form of a reflected ultrasonic wave returned from said object and correcting~~, from phase shift of a receive signal returned from said object referred to said transmit signal~~, a phase aberration in ~~the~~a lateral direction of a beam of ~~said~~the ultrasonic wave caused by a phase shift of

the receive signal due to frequency–dependent attenuation and/or phase shift due to a diffraction effect; acquiring an acoustic impedance image of said object from ~~said~~the corrected receive signal and/or a derivative image about ~~the~~a space position of ~~said~~the acoustic impedance; and displaying ~~said~~the acoustic impedance image and/or ~~said~~the derivative image.

20. (currently amended) An ultrasonic imaging method which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising the steps of: transmitting a transmit signal in a form of an ultrasonic wave to said object; ~~to~~ orthogonally ~~detect~~detecting a receive signal in a form of a reflected ultrasonic wave returned from said object; obtaining a component corresponding to a phase shift from ~~said~~the orthogonally detected receive signal; removing an abrupt change from ~~said~~the component corresponding to the phase shift by using a low–pass filter; using the output signal of ~~said~~the low–pass filter to correct~~, to said receive signal, from phase shift of a receive signal returned from said object referred to said transmit signal,~~ a phase aberration in ~~the~~a lateral direction of a beam of ~~said~~the ultrasonic wave caused by phase shift due to frequency–dependent attenuation and/or phase shift due to a diffraction effect; obtaining, based on ~~said~~the receive signal in which the phase is corrected, an acoustic impedance image of said object and/or a derivative image about ~~the~~a space position of ~~said~~the acoustic impedance; and displaying ~~said~~the acoustic impedance image and/or ~~said~~the derivative image.

21. (currently amended) The ultrasonic imaging method according to claim 20, wherein ~~said~~the acoustic impedance is based on a contrast agent injected to said

object.

22. (original) An ultrasonic imaging method which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising the steps of: transmitting a transmit signal superimposed on an even harmonic wave of a fundamental wave to said object; orthogonally detecting a receive signal returned from said object to extract an orthogonal component of said even harmonic wave from said orthogonally detected receive signal; acquiring an acoustic impedance image of said object and/or said derivative image based on said extracted orthogonal component; and displaying said acoustic impedance image and/or said derivative image.

23. (original) The ultrasonic imaging method according to claim 22, wherein said acoustic impedance is based on a contrast agent injected to said object.

24. (original) An ultrasonic imaging method which transmits/receives an ultrasonic wave to/from an object using an ultrasonic probe to image said object, comprising the steps of: transmitting a transmit signal superimposed on an even harmonic wave of a fundamental wave to said object; orthogonally detecting a receive signal returned from said object to extract an in–phase component of said even harmonic wave from said orthogonally detected receive signal; acquiring an acoustic impedance image of said object and/or said derivative image based on said extracted in–phase component; and displaying said acoustic impedance image and/or said derivative image.

25. (original) The ultrasonic imaging method according to claim 24, wherein said acoustic impedance is based on a contrast agent injected to said object.

26. (currently amended) The ultrasonic imaging system according to claim 14, wherein ~~said~~said the means for detecting detects the phase aberration of ~~said received~~the receive signal due to the discontinuity of acoustic impedance in said object ~~is detected~~ by discrimination from phase aberration of ~~said received~~the receive signal due to other factors.

27. (currently amended) The ultrasonic imaging system according to claim 14, ~~said~~wherein the means for obtaining a time change in ~~said~~the acoustic impedance of said object detects ~~derived from~~ information about a space position of ~~said~~the acoustic impedance by detecting ~~a~~the phase shift of ~~said received~~the receive signal.